**7 Entrenchment of Light Warlpiri morphology**

**Abstract:** The early years of a recently emerged language are observed in the emergence of Light Warlpiri (O'Shannessy, 2005, 2012, 2013), which systematically combines elements of Warlpiri (Ngumpin-Yapa) and varieties of English and Kriol (an English-lexified creole). Light Warlpiri combines nominal morphology from Warlpiri with verbal structure mostly from varieties of English and/or Kriol, but with some innovations (O'Shannessy, 2013). Light Warlpiri speakers also speak Warlpiri, allowing a longitudinal study of the children's production of both languages, and documentation of the path of development of Light Warlpiri. Using a quantitative analysis, this chapter traces the production of ergative and dative morphology in children's contemporary Warlpiri and Light Warlpiri in one community over a five year period, and finds that trends observed earlier (O'Shannessy, to appear) have become entrenched. First, the occurrence of ergative marking has increased in Light Warlpiri, across all age groups, such that it now parallels that in contemporary Warlpiri. But in Light Warlpiri there has been allomorphic reduction, making the Light Warlpiri forms clearly different from Warlpiri, and removing the Warlpiri conditioning factors of word length and vowel harmony. Second, dative case allomorphy patterns somewhat like the ergative in that Light Warlpiri allomorphy is reduced while contemporary Warlpiri allomorphy is not. Increased use of ergative marking in Light Warlpiri has made the languages more similar in this area, yet in terms of surface forms the two languages show increasing difference.

**1 Introduction**

The opportunity to observe the early years of development of a newly emerged language is rare, but is presented in the emergence of Light Warlpiri (O'Shannessy, 2005, 2012, 2013). Long before I knew what my PhD plans were, Patrick McConvell visited me in Lajamanu, and encouraged me to pursue research on language use by young people in the community. Patrick’s active role in supporting my work and that of PhD students in the Aboriginal Child Language project was invaluable and is very much appreciated. He has continued to inspire and encourage over the years.

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2005, 2012, 2013), which systematically combines elements of Warlpiri (Ngumpin-Yapa) and varieties of English and Kriol (an English-lexified creole). Light Warlpiri is spoken by young adults – now aged about 35 and under – and children in a small remote community. Light Warlpiri is the result of language contact processes, and is spoken in a context of continuing language contact. It combines nominal morphology from Warlpiri with verbal structure mostly from varieties of English and/or Kriol, but with some innovations (O’Shannessy, 2013). An example is given in (1a), with constructed examples in Warlpiri in (1b) and in Kriol in (1c) for comparison.

(1) (a) Kuuku-ngi=m pud-im kankarl watiya-nga jarntu
monster-ERG 3SG.S=NFUT put-TR high tree-LOC dog
The monster put the dog up in the tree. LW2 (ERGstoryLC39_2010)

(b) kuuku-rulu=ø yirra-rnu kankarlu watiya-rla jarntu
monster-ERG=3SG.S put-PST high tree-LOC dog
The monster put the dog up in the tree. W (constructed)

(c) debil-debil bin heng-im-ap det dog la tri
monster-REDUP PST hang-TR-up DET dog LOC tree
The monster put the dog up in the tree. Kriol (constructed3)

In (1a) nouns and nominal morphology are from Warlpiri, kuuku-ng ‘monster-ERG’, watiya-nga ‘tree-LOC’, jarntu ‘dog’, and kankarlu ‘high’. The verbal complex shows an Aboriginal English or Kriol transitive marker on the English-derived transitive verb, pud-im ‘put-TR’, and innovation in the auxiliary (O’Shannessy, 2013). The verbal innovation is shown more clearly in (2), where the temporal element indicating nonfuture tense/irrealis mood, glossed NFUT, is attached to the pronominal element, yu ‘2SG’.

(2) junga mayi nyuntu yu=m go wati-kari-kirl mayi
true Q 2SG 2SGS=NFUT go man-other-COM Q
Is it true that you went with another man? LW (O’Shannessy, 2013: 330)

Of particular interest is that LW speakers also speak Warlpiri, allowing a longitudinal study of the children’s production of both languages, and documentation of the path of development of Light Warlpiri. Incipient patterns in a new

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2 In the examples ‘LW’ means Light Warlpiri and ‘W’ means Warlpiri. Elements derived from Warlpiri are in italics, and those from English/Kriol in plain font.

3 Many thanks to Denise Angelo for the constructed Kriol example.
language may become entrenched over time, leading to stabilisation in those areas of the grammar. Indicators of stability of new mixed languages include that the speakers no longer fluently speak the source languages (Thomason, 2003), the new language has structures that do not occur in the sources (O’Shannessy, 2005, 2012), choices of lexicon, morphology and morphosyntax are consistent (Auer, 1999; Meakins, 2013; O’Shannessy, 2005, 2012), and the language is learned by children as their first language (Meakins, 2013; O’Shannessy, 2005, 2012). Entrenchment of earlier trends contributes to greater consistency.

Data collected in Lajamanu community in 2005 (O’Shannessy, To appear) showed that changes in the allomorphy of ergative and dative cases were taking place in both Warlpiri and Light Warlpiri, but with quantitative differences between the two languages. The changes are in the degree of optionality, in the number of allomorphs in use, and in how the allomorphy is conditioned. In this paper, using quantitative methods, I analyse children’s production data from two time points, 2005 and 2010, and address two questions. First, does the degree of optionality of ergative case-marking in children’s Light Warlpiri and Warlpiri elicited narrative texts change over a five-year period, between 2005 and 2010? And second, do patterns of allomorphic reduction in ergative and dative case-markers, that were emerging in Light Warlpiri in 2005 elicited narrative data, become entrenched by 2010?

In the next section I review literature on optional ergativity and allomorphic reduction. Sociolinguistic background is given in Section 3, and in Section 4 I discuss background information on Warlpiri and Light Warlpiri. The methods of data collection and analysis are given in Section 5. The results are presented in Section 6, and the discussion and conclusion in Section 7.

2 Optional ergativity and allomorphic reduction

2.1 Optional ergativity

A language has optional ergative marking when the absence of an ergative marker on an overt subject of a transitive verb does not change the grammatical role of the nominal from being an A argument (McGregor, 2010). Optional ergative marking is not conditioned categorically by lexical or grammatical factors in the sense of, for instance, aspectual conditioning, as in Hindi (e.g. Narasimhan, 2005), or whether the noun is a noun or pronoun, as in Dyirbal (Dyirbalic,

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4 I use Dixon’s (1979) notation of A argument for the subject of a transitive verb, S argument for the subject of an intransitive verb, and O for the object of a transitive verb.
Dixon, 1972) and Wambaya (Mirndi, Nordlinger, 1998 in McGregor, 2010). Rather, motivations are typically semantic and pragmatic factors (McGregor, 2010), and a speaker’s choice indicates nuances of the social and discourse context in addition to indicating an A argument. For example, in Umpithamu (Paman, Pama-Nyungan) only animate transitive subjects in focus receive ergative marking (Verstraete & McGregor, 2010) and in Warrwa (Nyulnyulan, non-Pama-Nyungan) an A argument that is unexpected and highly agentive in the discourse is marked (McGregor, 2010). Unexpectedness plays a conditioning role in whether A arguments are marked ergatively in Kuuk Thaayorre (Paman, Pama-Nyungan), and extends to subjects of intransitive verbs, which may also take ergative marking (Gaby, 2010). In Kaluli (Trans-New Guinea), when an A referent is in focus it is positioned immediately before the verb and, if non-pronominal, marked with the ergative (Schieffelin, 1985). Ergative marking in Samoan (Austronesian) is conditioned by social distance of the interlocutors and formality of the context (Ochs, 1982) – the greater the social distance and formality, the more ergative marking is employed.

Semantic factors are relevant in Ku Waru (Papuan) and Bunuba (Bunuban, non-Pama-Nyungan), where ergative marking is integrated with degrees of transitivity in that it occurs more often when object referents are more individuated, and this is linked to individuation of reported clauses – more direct reports occur with ergative marking (Rumsey, 2010). Animacy partially conditions ergative marking in Gooniyandi, where ergative marking almost always occurs on inanimate A arguments, but less often on pronominals (McGregor, 2010). Here animacy intersects with agentivity as non-use of the ergative marker signals low agentivity of the A argument (McGregor, 2010). In some languages, ergative marking also occurs on S arguments, for instance Guugu Yimithirr (Haviland, 1979: 155), Ngaanajtjara (McGregor, 1979: 119), Kuuk Thaayore (Gaby, 2010) and Gurindji Kriol (Meakins, 2015). However, ergative marking very rarely occurs on S arguments in Warlpiri (a few times in hundreds of clauses). It occurs on some S arguments in Light Warlpiri when the verb is ‘try’ and the subordinate clause contains a transitive verb, but these instances are not discussed here (and are not included in the quantitative analysis). Optional marking in obsolescing languages may indicate a change from prior obligatory marking (e.g. Campbell & Muntzel, 1989), but need not necessarily do so. McGregor (2010) gives a comprehensive overview of factors conditioning optional ergative marking.

In Warlpiri, one of the source languages of Light Warlpiri, ergative marking was obligatory on A arguments\(^5\) except on some first person pronouns when

\(^5\) In both Warlpiri and Light Warlpiri ergative marking occurs on instrument NPs, but only ergative marking on A arguments is discussed in this paper.
first documented (Hale, 1966, 1982; Hale, Laughren, & Simpson, 1995; Laughren, Hoogenraad, Hale, & Granites, 1996; Nash, 1986; Simpson, 1991; Swartz, 1982, 1991), but optional in some varieties documented later (Bavin & Shopen, 1985a, 1985b, 1989, 1991; O’Shannessy, 2009, 2011, 2013). In Light Warlpiri and another Australian mixed language, Gurindji Kriol, the ergative marking that was obligatory in the source languages (in Gurindji), or nearly so (in Warlpiri), became optional in the mixed languages (Meakins & O’Shannessy, 2010). In becoming optional the ergative marker took on modified functions. It occurs more often on postverbal and inanimate A arguments and indicates heightened agentivity of the agent, including when an agent is in contrastive focus (Meakins & O’Shannessy, 2010). Several languages in which optional ergative marking has been observed are highly endangered and some have very few speakers (e.g. Warrwa (McGregor, 2006), Gooniyandi (McGregor, 1992), Kuuk Thayore (Gaby, 2010), Jingulu (Pensalfini, 1999)), raising the question of whether the optionality is a recent phenomenon related to language obsolescence, but as Verstraete and McGregor (2010) point out, in these two mixed languages we see optional ergative marking occurring as the languages come into being. This allows the opportunity to ask whether the degree of optionality remains stable in the new language or changes over time. In Gurindji Kriol the ergative marker, applied to S as well as A arguments, has more recently become an optional nominative marker, with the case alignment of the language changing from split/optional ergative to nominative-accusative (Meakins, 2015).

2.2 Allomorphic reduction

Reduction in the number of allomorphs of case markers can be part of internal language change, and can be triggered or accelerated through language contact and in obsolescing languages. The reduction in obsolescing languages has been thought to be linked to restricted domains of usage (e.g. Trudgill, 1976: 38), but data from newly developing languages suggests that there must also be other reasons (Meakins & O’Shannessy, 2010).

The obsolescing variety of East Sutherland Gaelic (Dorian, 1973, 1978) provides a well-known instance of allomorphic reduction. East Sutherland Gaelic had eleven processes of forming allomorphs for plurals and gerunds, including, for example, suffixation, word final mutation, vowel alternation and combinations of those. Dorian found that young speakers, those fluent and less so, were making use of fewer processes, some at the expense of others. Less fluent speakers showed the most change, with an increase in simple suffixation, and addition of some innovations, such as zero plurals (Dorian, 1973; 1978: 598–9).
Nevertheless even the less fluent speakers still used multiple processes of morphology formation, leading to Dorian’s famous line that East Sutherland Gaelic was “dying with its morphological boots on” (Dorian, 1978: 608).

Reduction of ergative allomorphy is seen in some Australian languages. Traditional Dyirbal (Dixon, 1972; Schmidt, 1985) had nine ergative allomorphs, conditioned by stem length and final sound, but Schmidt (1985) showed that among speakers aged 15 to 35 years reduction was occurring, leading to complete loss of ergative marking in the speech of some speakers. At that point word order indicated core grammatical relations. Five stages were seen in the number of allomorphs used by individual speakers, concurrently, with different speakers using different numbers of forms. Each speaker was consistent in the forms used, and for each speaker the collapsing of allomorphs followed the same pattern.

Teenage speakers of Areyonga Pitjantjatjara (Langlois, 2004: 56–9) have reduced the number of allomorphs in all cases. In traditional Pitjantjatjara case markers are conditioned by the final sound of the stem, that is, according to one of three places of articulation of final consonants, or a final vowel. Case allomorphs begin with a stop consonant that is homorganic to a stem-final consonant if there is one. Words must be vowel-final and uninflected consonant-final stems are augmented with the morpheme –pa, making them vowel final. On common nouns the number of case forms has been reduced from four to one, through reanalysis of the augmentative suffix on the stems. Stems are analysed as ending with augmentative –pa, making them all vowel-final, and subsequently only the vowel-final case markers are required. Case allomorphs on proper nouns have reduced from four to two. On vowel-final stems the form is unchanged from traditional Pitjantjatjara, and the same form is now applied to consonant final stems, with the addition of an epenthetic vowel. In both Dyirbal and Areyonga Teenage Pitjantjatjara intense contact with English is seen as at least part of the motivation for the change.

Dative case suffixes have been replaced by prepositional constructions in some contexts in a mixed language neighbouring Light Warlpiri, namely Gurindji Kriol, which combines Gurindji (Ngumpin) and Kriol (Meakins, 2011: 82–3). In the speech of teenagers, Kriol prepositions are used variably in conjunction with dative case suffixes for some functions, for example animate goals and indirect objects (notably not possession). However, although in Kriol locative prepositions mark these functions, in Gurindji Kriol dative prepositions do so, consistent with dative case functions in Gurindji, one of the sources (Meakins, 2011: 82–3).
3 Sociolinguistic background

Warlpiri is a Yapa language (Ngumpin-Yapa) in the larger family of Pama-Nyungan. It is spoken by about 4,000 people (Laughren et al., 1996) in small remote communities and some towns in the Northern Territory of Australia. Light Warlpiri is spoken in one of those communities, Lajamanu (see Figure 1). The community lies on the northern edge of the Tanami Desert, 570 kms south west from the town of Katherine, and about 890 kms north west of Alice Springs.

Other Warlpiri communities are also distant, the closest being about 600 kms away, due to government coercion and forced migration in 1948–49 (Berndt & Berndt, 1987; Rowse, 1998), when Lajamanu was formed (then called Hooker Creek). The community has a population of 586 (ABS, 2011), and most people living there are Warlpiri. Non-Indigenous people whose first language is usually English live and work in the community for periods of up to a few years, and many visit there for only a few days at a time. The community is administered through a regional government system, with local representation. Some other services in the community are a school, a health clinic, police, a shop, an aged care centre, the Central Land Council, an art centre, and a youth program. Many Warlpiri adults work part time in those services, and advising various administrative agencies, and many others are unemployed.

Children learn both Light Warlpiri and Warlpiri from birth, but usually produce Light Warlpiri as their primary language. They produce more Warlpiri as they grew older, and also add varieties of English to their repertoire. They attend school from age four and currently English is the primary medium of instruction, with about five hours of instruction given in Warlpiri per week. There have been periods of time when the school has had a bilingual education program in Warlpiri and English, but administrative and wider political support for it has ranged from being inconsistent to actively opposing it. Most Warlpiri in the community support formal education in two languages. Some written Warlpiri materials were developed for the school programs, and some are used in the church. Light Warlpiri is not currently written, and is not taught in the school.

Light Warlpiri developed through a two-step process (O’Shannessy, 2013). In the first stage adults spoke to children in Warlpiri-English code-switched speech as part of a baby talk register. They used a systematic code-switching pattern with Aboriginal English/Kriol pronouns and verbs inserted into a Warlpiri string. In the second stage the young children internalised this pattern as a single system, spoke it as their primary language and added innovations in the verbal complex (O’Shannessy, 2012, 2013).
Figure 1: Locations of Warlpiri communities, Northern Territory
4 Ergative and dative case morphology in Light Warlpiri and its source languages

The source languages of Light Warlpiri are Warlpiri, varieties of English, and Kriol. Nominal case morphology is retained from Warlpiri. A brief sketch of the basic clause structure in Warlpiri is needed before details of the ergative and dative case systems are given. Grammatical functions in Warlpiri are indicated through nominal case-marking, and the core case-marking system is ergative-absolutive. Absolutive case, which occurs on S and O arguments, is realized as null marking. In the ergative-absolutive system A arguments receive overt marking, and S and O arguments do not. Constructed examples of transitive and intransitive sentences are given in (3) and (4).

(3) *Yapa-patu ka=lu wapa-mi.*  
   person-PL pres=3PL.S walk-NPST  
   The people walk/are walking.  
   W (O’Shannessy, 2013: 335)

(4) *Yapa-patu-rlu ka=lu=jana nya-nyi kurdu-kurdu.*  
   person-PL-ERG PRES=3PL.S=3PL.O see-NPST child-REDUP  
   The people see the children.  
   W (O’Shannessy, 2013: 335)

Although Warlpiri has nominal ergative-absolutive morphology, agreement marking through bound pronouns follows a nominative-accusative pattern. The case marking system allows variable word order, and sentence-initial elements are those which are in focus or are prominent (Hale, 1992; Simpson, 2008; Simpson & Mushin, 2005; Swartz, 1991).

Varieties of Australian English and Kriol both contrast with Warlpiri in that they do not have ergative-absolutive case. Rather, grammatical functions are indicated through nominative-accusative SVO word order. Varieties of Aboriginal English and Kriol have more flexible word order than does Standard Australian English, as preposing and postposing of topic and focus phrases is common (Butcher, 2008; Hudson, 1983; Malcolm, 2013; Sandefur, 1979). Dative case functions – benefactive, purposive and in Kriol, possessive – are expressed through prepositions (and in some Kriol varieties a postposition possessive) (Schultze-Berndt, Meakins, & Angelo, 2013: 244–5). Dative case prepositions in Kriol are *blanga, bla, ba, blaganda, fo, bo* (Schultze-Berndt et al., 2013: 245). Dative case prepositions in Aboriginal English varieties draw from Kriol and Australian English.
4.1 Ergative and dative case morphology in Classic Warlpiri

4.1.1 Ergative case morphology in classic Warlpiri

The ergative case-marker (ERG), which occurs on A arguments and instrumental referents, has four forms, conditioned by stem length and vowel harmony. The forms are -ngku/-rlu (where ng represents a velar nasal, and rl represents a retroflex lateral) depending on the length of word stem, and they become front vowel forms, -ngki/-rli when attached to a word ending in a front vowel. A nasal form occurs on stems of two morae, as in warlu-ngku ‘fire-ERG’ and ngati-ngki ‘mother-ERG’, and a lateral form occurs on stems of three or more morae, as in jilkarla-rlu ‘thorn-ERG’ and maliki-rl ‘dog-ERG’. There are no monomoraic stems in Warlpiri. The vowel harmony rule here applies to most case-marking suffixes on Warlpiri words, because their forms contain /u/ underlyingly (Hale, 1992; Harvey & Baker, 2005; Nash, 1986). Examples are given in (5) and (6).

(5) Nantuwu-ju=ø=ø paju-rnu nganayi-rli pensi-ngki.
    horse-TOP=3SG.S=3SG.O cut-PST something-ERG fence-ERG
    Something, the fence, cut the horse. W (ERGstoryWA42)

(6) Kamina-rlu jinta-ngku ka=ø=rla kurdu-ku warri-rni.
    girl-ERG one-ERG PRES=3SG.S=3SG.O dog get-NPST yard-ABL
    The girl got the dog from the yard by herself. W (ERGstoryWA32)

4.1.2 Dative case in classic Warlpiri

Warlpiri dative case is selected by verbs in the ergative-dative, ergative-absolutive-dative and absolutive-dative and case arrays (Hale, 1982: 245–6). The dative can be registered in the verb-auxiliary complex as well as on nominals and can control object-complementizer clauses so is regarded as a grammatical case (Hale, 1982: 254; Hale et al., 1995: 1438–41). In ergative-dative constructions dative case is marked on the indirect object. This array includes “verbs of seeking” (Hale, 1982: 249), such as looking for, searching for, as in (7).

(7) Wati-ngki ka=ø=rla kurdu-ku warri-rni.
    man-ERG pres=3SG.S=DAT child-DAT search-NPST
    The man is looking for the child. W (Laughren et al., 2005)
The ergative-absolutive-dative array includes verbs of physical transfer in which the dative argument is marked on the indirect object, which is the goal or source of the event depicted by the verb, for example, yi- ‘give’ and punta- ‘take.away’, as in (8).

(8) Ngajulu-rlu kapi=ma=rla kurdu-ku karli-patu punta-rni.
    1sg-ERG FUT=1SG.S=DAT child-DAT boomerang-PL take.away-NPST
    I am going to take the several boomerangs away from the child.
    W (Hale, 1982: 252)

The absolutive-dative construction covers a range of meanings, including for example, verbs of emotion, talking to, and waiting for (Hale, 1982: 245–6), and the dative is marked on the nonsubject argument. Many absolutive-dative verbs are in an inchoative construction, as in (9).

(9) Lani-jarrimi ka=ø Jampijinpa kuuku-ku-ju, Jangala.
    scared-INCHO PRES=3SG.S subsection bogey.men-DAT-TOP subsection
    Jampijinpa is afraid of the bogey-men, Jangala.
    W (Laughren et al., 2005)

The dative can also be applied as an adjunct to the case selected by the verb, with functions including benefactive, as in (10), purposive in (11), and malefactive in (12) (Hale 1982: 255–6).

(10) Ngarrka-ngku ka=ø=rla kurdu-ku karli jarnti-rni.
    man-ERG PRES-3SG.S-DAT child-DAT boomerang trim-NPST
    The man is trimming the boomerang for the child.  W (Hale, 1982: 254)

(11) Yapa ka=lu muku ya-ni miyi-ki.
    person PRES=3PL.S all go-NPST food-DAT
    The people are all going for food.  W (Hale et al., 1995: 1439)

(12) Nantuwu ka=ø=rla Japanangka-ku mata-jarri-mi.
    horse PRES-3SG.S-DAT subsection-DAT tired-INCHO-NPST
    The horse is tiring on Japanangka.  W (Hale 1982: 254)

The dative is employed in more contexts than those represented here; for details see Hale (1982; 1995).

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6 In the morpheme gloss I use ‘subsection’ where Hale (1982: 254) has ‘Japanangka’. 
The form of the dative allomorph is conditioned by vowel harmony alone. Words with a final back vowel take a back vowel form, as in *kurdu-ku* ‘child-DAT’, and those with a final front vowel take a front vowel form, as in *wirlinyi-ki* ‘day.trip-DAT’. The case allomorphs discussed in this paper are summarised in Table 1.

**Table 1: Case-marker forms in classic Warlpiri**

<table>
<thead>
<tr>
<th>Case forms with vowel harmony</th>
<th>Stems end with back vowel</th>
<th>Stems end with front vowel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ergative</td>
<td>on stems with 2 morae</td>
<td>-ngku</td>
</tr>
<tr>
<td></td>
<td>on stems with 2+ morae</td>
<td>-rlu</td>
</tr>
<tr>
<td>Dative</td>
<td></td>
<td>-ku</td>
</tr>
</tbody>
</table>

### 4.2 Vowel harmony and English borrowings

Warlpiri words end in a vowel, but many English words do not. English words that end in consonants take a final epenthetic vowel when borrowed into Warlpiri. The default epenthetic vowel for a consonant-final borrowed word is */i/*, but a back vowel may be applied when a high back vowel occurs before the final consonant (Harvey & Baker, 2005; Nash, 1986). For instance, ‘Alice Springs’ becomes *Yalijipiringi*, ‘yard’ becomes *yarti*, but ‘school’ becomes *kuurlu* (Harvey & Baker, 2005: 1462). That is, the vowel harmony rule for consonant-final borrowed words is that an underlying */i/* form becomes */u/* following a back vowel (Laughren et al., 1996: 201–205). There is both individual and dialectal variation in whether the rule is applied, but speakers of the northern dialect are reported to apply it (Harvey & Baker, 2005; Nash, 1986), and many older speakers of that dialect live in Lajamanu community. Borrowed words with final vowels take case forms following the rules for Warlpiri stems. Note that varieties of Australian English are not rhotic – *[ɾ]* only occurs before vowels. The following section discusses changes in progress in Warlpiri case-marker forms and frequencies in contemporary Warlpiri.

### 4.3 Ergative and dative case morphology in Contemporary Warlpiri

Several changes in Warlpiri were noticed in the 1980s, and included increased SVO word order, and some omission of ergative marking from A arguments (Bavin...
Final vowel deletion or voiceless vowels occur on nominal suffixes, for example, the suffix \-'lk\(_u\) ‘then’, is often pronounced \-'lk\, as in \(jinta-kari-\)lk ‘one-other-then’ (O’Shannessy, 2013).

The functions of the case-marking subsystems in contemporary Warlpiri are the same as in classic Warlpiri. But the number of allomorphs has increased, through modifications of the traditional forms – omission of vowels and reduction of consonant clusters. The new forms are used in addition to the classic forms, and are summarised in Table 2.

### Table 2: Case-marker forms in contemporary Warlpiri

<table>
<thead>
<tr>
<th>Case forms with vowel harmony</th>
<th>On stems with a final back vowel</th>
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<tr>
<td></td>
<td>on stems with 3+ morae</td>
<td>-rlu, -ngku, -ngu, -ng</td>
</tr>
<tr>
<td>Dative</td>
<td>-ku, -k</td>
<td>-ki, -k</td>
</tr>
</tbody>
</table>

### 4.3.1 Ergative case in contemporary Warlpiri

The ergative case-marker in contemporary Warlpiri, which occurs on overt subjects of transitive verbs and instrument referents, has an increased number of forms – the four forms described above for classic Warlpiri, plus three additional nasal forms. The additional forms omit the stop consonant after the velar nasal, creating \-ngu\ and \-ngi\, and another form omits the vowel also, creating \-ng\. The allomorphic conditioning is also changing (Bavin & Shopen, 1985b). Word stem length was a conditioning factor for ergative and locative case-markers in classic Warlpiri, but now the stem length requirement has been relaxed. For example, Bavin and Shopen (1985b) noted \(kurlarda-ngku\ ‘spear-ERG’\ instead of the classic Warlpiri \(kurlarda-rlu\ ‘spear-ERG’\). The extent of the changes in conditioning factors in children’s contemporary Warlpiri in Lajamanu is discussed later in the paper, in comparison to Light Warlpiri.

(13)  
\[
\text{Marda-rni ka=npa yartiwaji karnta-pauw-ng} \quad \text{have-NPST PRES=2SG.S picture woman-DIM-ERG} \\
\text{kura ka=ø watiya ma-ni?} \quad \text{COMP PRES=3SG.S wood get-NPST} \\
\text{Have you got a woman who is getting wood? W (ERGcardWA30A32)}
\]
Example (13) shows the velar form of the ergative case-marker, with no vowel, on a four syllable word, *karnta-pawu* ‘woman-DIM’.

### 4.3.2 Dative case in contemporary Warlpiri

The only change to dative case allomorphy in contemporary Warlpiri is the addition of a nominal suffix allomorph with either a voiceless vowel or no vowel, creating -k, in addition to -ku/-ki, however the shortened form occurs only rarely in my adult Warlpiri data. The functions of dative case remain the same as documented in Hale (1982). Example (14) shows an adjunct dative with benefactive function with a consonant-final dative suffix.

(14) *Kurdu-k=ø nyanungu-nyangu junga ngula wilypi-pardi-ja.*  
child-DAT=3SG.S 3SG-POSS truly ANAPH emerge-emerge-PST  
It was for his child, really, that he came out. W (FamWA13_A41)

### 4.4 Ergative and dative case morphology in Light Warlpiri

Light Warlpiri indicates grammatical functions almost entirely through nominal case morphology retained from Warlpiri, with some use of SVO word order, and a few instances of prepositions derived from English, mostly in dative case. The frequencies and allomorphy of each case-marker are discussed in turn.

#### 4.4.1 Ergative case morphology in Light Warlpiri

In Light Warlpiri data collected between 2002 and 2005, the ergative case-marker occurred on an average of 59% of overt transitive subjects, most often when there was VO order, and was also taking on a discourse function of highlighting the salience of the agent (Meakins & O’Shannessy, 2010). Ergative case-marking occurs in Light Warlpiri on overt subjects of transitive verbs, and on instrument NPs, often attached to the comitative marker, *-kurlu*, as in (15) (but marking on instrument NPs is not discussed in this paper).

---

7 Hale (1966) noted in 1966 that a speaker of Lander River Warlpiri produced voiceless vowels, especially on the dative -ku. The question of voiceless vowels vs vowel deletion, especially mid-clause, is yet to be investigated in the contemporary data.

8 The amount of ergative marking differs according to discourse context, which follows from its being optional.
Matha-wan-\textit{i t\textit{ra}i tip-im watiya-kurlu-ng.}

\textit{mother-one-ERG 3SG.S try hit-TR stick-COM-ERG}

The mother tries to hit it with a stick. LW (ERGstoryLC37_2010)

O’Shannessy (To appear) reports that the ergative case form in Light Warlpiri has the same allomorphy as in contemporary Warlpiri: -rlu/-rli, -ngku/-ngki, -ngu/-ngi, and -ng, but that the lateral forms rarely occur, and the form with no vowel, -ng, accounts for many tokens. However, rather than the -ng form moving towards becoming the sole ergative form, another allomorph was in the process of conventionalising: -\textit{ing}. Background information about word stems in Light Warlpiri is crucial to understanding the path of development of the ergative marker, and follows here.

All case markers in Warlpiri begin with consonants, and Warlpiri has CV syllable structure. Consequently, in both Warlpiri and Light Warlpiri, when a word stem is consonant-final and a case-marker is attached, an epenthetic vowel form is usually inserted to maintain the CV syllable pattern, as in \textit{fens-i-ng ‘fence-EPEN-ERG’} and \textit{raid-i-k ‘ride-EPEN-DAT’}. In classic Warlpiri we would expect an epenthetic vowel to appear wordfinally on a consonant-final word derived from English, regardless of whether an affix is attached, as in \textit{fens-i ‘fence-EPEN} and \textit{raid-i ‘ride-EPEN’}. But the phonotactics of Light Warlpiri differ in that when there is a bare stem, English-derived words usually end in a consonant, with no vowel added, a feature which is permitted in English, Kriol and now contemporary Warlpiri, but not in classic Warlpiri. Words in the Light Warlpiri data (collected in both 2005 and 2010) that appear with a case form affixed to them were identified, and tokens of the same words without a case-marker attached were also found. Some words do not occur in the data in both contexts, with and without case-markers. The following words occur in the data in consonant-final forms when they are bare stems: \textit{botul ‘bottle’, boi-wan ‘boy’, gel ‘girl’, man ‘man’, fens ‘fence’, geit ‘gate’, sneik ‘snake’, san ‘sun’, raid ‘ride’, motabaik ‘motorbike’, help ‘help’, laitning ‘lightning’, shet ‘shirt’, yelo-wan ‘yellow-NMLZ’, woman ‘woman’}. There are a few tokens of some words listed that do have a final vowel added, but they account for less than one in ten occurrences of the word. The data show that in Light Warlpiri these words can be, and most often are, consonant-final. Therefore, when a vowel appears wordFinally on an English-derived stem preceding a case-marker, it can be considered to have been added to the stem along with the case-marker, for example, \textit{sneik-i-ng ‘snake-EPEN-ERG’, gait-i-ng ‘gate-EPEN-ERG’}. In these contexts the form of the ergative case marker is considered to be -\textit{ing}. Analysis of the Light Warlpiri data collected in 2005 suggests that two forms of ergative case are conventionalising, -\textit{ng} and -\textit{ing}. 

O’S
In the 2005 data, when vowel epenthesis was re-coded as a vowel being present in the case forms, the -ng form then accounted for 62% of all tokens of ergative forms in Light Warlpiri, compared to 11% in contemporary Warlpiri. Tokens rather than types were counted because different tokens can occur on the same word stem, including within the speech of a single speaker. For instance, a speaker may say both jilkarla-ngu ‘thorn-ERG’ and jilkarla-ng ‘thorn-ERG’.

(16) Jinta-kari-ng na i=m ged-im kanta.  
    one-other-ERG DIS 3SG.S-NFUT get-TR bush.coconut  
The other one is getting the bush coconut. LW (ERGstoryLC39_2010)

(17) Fatha-wan-ing i=m kam-at-im wiil-jangka.  
    father-one-ERG 3SG.S-NFUT come-out-TR wheel-ABL  
The father got it out from the wheel. LW (ERGstoryLC37_2010)

Examples (16) and (17) show velar nasal forms of the ergative case-marker without a final vowel. In (17) the ergative marker appears on an English-derived word, as the -ing form.

Since ergative marking in Light Warlpiri is optional, and SVO word order consistent with English is present, if a change in optional marking were to take place, we might expect it to be in the direction of less marking, under the influence of English, making greater use of word order to indicate grammatical relations at the expense of morphological means.

4.4.2 Dative case morphology in Light Warlpiri

Dative case in Light Warlpiri is only registered on nominals, and not in the auxiliary as in Warlpiri (note that in Light Warlpiri nonsubjects are not registered in the auxiliary). As in Warlpiri, the dative in Light Warlpiri occurs in ergative-dative (18), ergative-absolutive-dative (19), and absolutive-dative case arrays (20).

(18) Pakarra-ng i=m luk-raun futbal-ik.  
    name-ERG 3SG.S-NFUT look-around football-DAT.  
    ‘Pakarra looked around for the football.’ LW (A21elic1t1_2015)

(19) Ngaju-ng a=m gib-im shet kurdu-pawu-k.  
    1SG.S-ERG 1SG.S-NFUT give-TR shirt child-DIM-DAT  
    I gave a shirt to the child. LW (LA21elic1t1_2015)
(20) *Kurdu-kurdu wita i=m shaut-ing jarntu-k.*  
child-REDUP small 3SG.S-NFUT shout-PROG dog-DAT  
The little children are shouting to the dog. LW (ERGstoryLC15)

Light Warlpiri absolutive-dative verbs express a range of semantics including emotion, perception, seeking, talking to and waiting for. As in Warlpiri, the dative can be used with an inchoative construction for verbs of emotion, as in (21). The verb *get* in (21) has the inchoative meaning of ‘become’.

(21) *Wan karnta-pawu i=m get-ing happy is jarntu-k.*  
one woman-DIM 3SG.S-NFUT INCHO-PROG happy POSS dog-DAT  
A woman is happy being with her dog. LW (LA21elic1_2015)

The dative can also be applied to an adjunct, with functions including benefactive, purposive and malefactive. Examples of these functions are given in (22) to (24) respectively.

(22) *Ngajarra-ng wi=m bai-im dress-pawu kurdu-pawu-k.*  
1DL.EXCL-ERG 1PL.S-NFUT buy-TR dress-DIM child-DIM-DAT.  
We two bought a little dress for the child.  
LW (benefactive, LC23elic1_2015)

(23) *Wan kurdu i=m hop-on watiya-nga kanta-k.*  
one child 3SG.S-NFUT climb-on tree-LOC bush.coconut-DAT  
A child climbs up the tree to get the bush coconut.  
LW (purposive, ERGSoryLC40)

(24) *Ngapa i=m fal-dan nyanungu-rra-k kurdu-kurdu-k.*  
rain 3SG.S-NFUT fall-down 3SG-PL-DAT child-REDUP-DAT  
It rained on them, on the children.  
LW (malefactive, ERGstoryLC39_2010_2)

Dative allomorphy in Light Warlpiri is the same as for contemporary Warlpiri, -*ku/-ki/-k*, with -*ku/-ki* conditioned by final vowel of stem. When the stem ends in a consonant, an epenthetic vowel is inserted, so that -*i-k* is a common structure, and -*k* and -*ik* are conventionalising as allomorphs. In the 2005 data the -*k* form accounted for 61% of tokens of all forms, compared to 12% in contemporary Warlpiri (O’Shannessy, to appear). Example (25) shows the reduced Warlpiri case form in an adjunct dative, purposive clause.
And the woman went to the tree to get the bush coconut.
LW (ERGstoryLA21)

However, the dative can also take an optional prepositional form derived from English ‘for’, fo/bo, and can co-occur with the Warlpiri-derived suffix, as in (26).

It fell on the dog. LW (ERGstoryLC39_2010)

Neither verb semantics, dative function, nor case array conditions the optionality of the prepositional form.

5 Data collection and analysis

The questions being addressed are 1) whether the degree of optionality of ergative case-marking in children’s Light Warlpiri and Warlpiri narrative texts change over a five-year period, between 2005 and 2010; and 2) whether patterns of allomorphic reduction in ergative and dative case-markers, that were emerging in Light Warlpiri in 2005, become entrenched by 2010. I use quantitative methods to respond to these questions. In this section I describe the methods of data collection and quantitative analysis.

The contemporary Warlpiri and Light Warlpiri data were collected by me in 2005 and 2010 in Lajamanu community. The children’s caregivers gave consent for their children to participate, and permission was also obtained from the Warlpiri staff at the local school, the Northern Territory Department of Education and Training, the local Community Council and the Central Land Council.

Participants: In 2005 there were 19 child participants (12 girls, 7 boys, age range 6;1–9;5). In 2010 there were 36 child participants (20 girls, 16 boys, age range 5;10–12;10). The children are grouped into three age groups, of mean ages 7, 9 and 12. The Warlpiri data from 2010 does not include an age group of 7 years old, because at that time children at age 6–7 years were somewhat reluctant to be recorded telling a story in Warlpiri, but children aged 8 and above felt confident to do so. The 7-year-olds’ reluctance cannot be interpreted straightforwardly as inability to speak Warlpiri, because sometimes a child who was
reluctant to be recorded was later observed telling a story in Warlpiri in a play situation in which there was no recording. The children’s reluctance may reflect negative self-evaluations of their Warlpiri skills, or reluctance due to lack of practise in speaking Warlpiri at that time.

*Materials:* The data for the case-marking analyses are stories told by children from picture book stimuli (O’Shannessy, 2004). Each of three books contains a series of pictures that can be used to create a narrative. The books were designed to elicit overt A arguments, to create opportunities for speakers to use ergative marking. Both animate and inanimate A argument referents occur. The books are culturally appropriate, and are available online at: http://www-personal.umich.edu/~carmelos/. A sample is given in Appendix 1.

*Procedure:* The children are multilingual, so to encourage them to speak in one language or the other in the task, they were played a 2–3 minute video showing still pictures of the same visual style as those in the task, with a voice-over narrative in either Warlpiri or Light Warlpiri. The children were asked to speak like the person they just heard, telling stories based on the picture books. Children could hold the books, with A4-size, laminated, colour pages, and turn the pages themselves. The 2005 narrations were recorded on video and those in 2010 on audio. The difference is because I found that in this task the video recordings did not provide significantly more useful information than the audio did, and the audio had higher audio quality, might be less intimidating to the speakers (although the children appeared to be comfortable with video in 2005), and was simpler to set up. The children told each story once in each language, with the order of languages counter-balanced for each person, and the narrations two weeks apart. Not every child told the stories in both languages. Some of the children participated in both 2005 and 2010.

*Methods of analysis:* The narratives were transcribed by me in CHAT format (MacWhinney, 2000), sometimes with a Warlpiri research assistant. Quantitative analyses of the case-marking frequencies were conducted from the texts of the stories in each language. Each case-marker was analysed in a separate analysis.

For each set of data that compares groups of children at two time points and some of the children are the same individuals, a mixed effects logistic regression analysis was used, specifically the lme4 package in R (Baayen, 2008; Bates, Maechler, & Bolker, 2012; Pinheiro & Bates, 2000). This analysis is appropriate for several reasons. In each analysis the dependent variable is binary, that is, each form either does or does not occur. The design involves repeated measures as the same speakers tell narratives in both Light Warlpiri and Warlpiri, and some speakers participated at both time periods. In addition, each speaker produces many clauses, so the data points from those clauses are not independent,
and some speakers produce more clauses with case-markers than others do, so the number of data points per speaker is not uniform. If the individual units of analysis are treated as independent and their relationships to each other are ignored, and/or if it is assumed that each speaker contributes the same number of data points, the results might be misleading or not as informative as they could be (Goldstein, 2003). A mixed effects logistic regression analysis takes each of these attributes of the data into account. The advantages of the model for categorical data are described in Jaeger (2008) and Tagliamonte (2012: 144–8). In the analysis, individual speakers and individual texts are treated as random effects, meaning that idiosyncratic attributes of a speaker or those drawn from a narrative are taken into account in the analysis, and are less likely to skew the results.

6 Results

In this section I analyse the occurrence of ergative and dative case markers in the children’s Light Warlpiri and contemporary Warlpiri in 2005 and 2010. I first analyse the degree of optionality and number of allomorphs present in ergative case marking, then the allomorphy of dative case-marking.

6.1 Ergative marking

6.1.1 Optional ergative marking in children’s Light Warlpiri texts

There are 156 transitive clauses with overt A arguments in the 2005 Light Warlpiri data, for mean ages 7 and 9 combined, and 272 in the 2010 data, for ages 7, 9, and 12 combined, shown in Table 3.

Table 3: Number of ergative case marker tokens in Light Warlpiri texts, 2005 and 2010, AV and VA word orders

<table>
<thead>
<tr>
<th>Ergative marking</th>
<th>Light Warlpiri 2005</th>
<th>Light Warlpiri 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>With erg</td>
<td>No erg</td>
</tr>
<tr>
<td>AV order</td>
<td>45</td>
<td>55</td>
</tr>
<tr>
<td>VA order</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>Total no. tokens</td>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>
The percentage of clauses with AV word order has increased slightly from 67% in 2005, to 79% in 2010. In the analysis the dependent variable was the presence of ergative marking, and the independent variables were time (2005 or 2010), word order (VA or AV) and age (7, 9 or 12). The results, given in Appendix 2, are that there are two significant changes in the 2010 Light Warlpiri data. First, the occurrence of ergative case-marking on overt A arguments has increased from 51% in 2005 to 79% in 2010 (p < 0.001). Second, when the word order is not AV, there is a far greater likelihood in 2010 that the A argument will take an ergative case-marker – 63% of arguments in VA position had a case-marker in 2005, increased to 96% in 2010 (p < 0.001).

The 2010 data include age group 12 years, whereas in the 2005 data the age groups are ages 7 and 9. To compare the ages of 7 and 9 years directly at the two times, Fisher’s Exact test was run. This test is appropriate because each group of children is independent from the others, that is, the same children do not occur at the two times in either age group. The design was a two by two matrix, crossing case-marking with time. The test found that there was more ergative marking in Light Warlpiri in 2010 than in 2005 (p < 0.001). Table 4 shows the data used in the test.

Table 4: Fisher’s exact test: Ergative case marking in Light Warlpiri, ages 7 and 9, 2005 and 2010

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2010</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>With ergative marking</td>
<td>77</td>
<td>76</td>
<td>153</td>
</tr>
<tr>
<td>Without ergative marking</td>
<td>73</td>
<td>19</td>
<td>92</td>
</tr>
</tbody>
</table>

A question arising from the increase in ergative marking in Light Warlpiri is whether the same transitive verbs occur in the texts from each time period. It might be that some verbs are conceptualised as more transitive than others (cf. Hopper & Thompson, 1980), and an increase in case marking might be due to the occurrence of verbs of higher degrees of transitivity in one set of texts. The transitive verbs occurring in each set of Light Warlpiri data, the contexts in which they occur, and the numbers of occurrences, are similar. A list of verbs used at each time point is given in Appendix 3.

6.1.2 Optional ergative marking in children’s Warlpiri texts

An analysis identical to that for Light Warlpiri was run for the children’s contemporary Warlpiri data from 2005 and 2010. The raw numbers are given in Table 5.
There were 293 tokens from 26 speakers. The only significant difference (see output in Appendix 4) found is that there is more ergative marking when the word order is VA ($p = 0.01$). In the Warlpiri texts ergative marking occurs on 83% of A arguments. When word order is not AV, ergative marking occurs on 89% of A arguments. However, the analysis was unable to run the factor of age because the age groups present are not the same at the two times. In 2005 the age groups are 7 and 9, and in 2010 they are 9 and 12. To compare age group 9 directly at the two times, Fisher's Exact test was run, crossing ergative marking and time. There is no significant difference in ergative marking at the two time points for children age 9.

### 6.1.3 Ergative allomorphy in children's Light Warlpiri texts

I now turn to the number of allomorphs of the ergative case-marker in Light Warlpiri. In the 2005 data all seven allomorphs occurred: -rlu/i, -ngku/i, -ngu/i, and -ng, although the lateral forms (-rlu, -rli) were rare. The velar form without a vowel (-ng) occurred significantly more often than other forms in Light Warlpiri – 62% of occurrences were the -ng form. There were no differences between age groups. It was suggested that an allomorphic distribution was conventionalising in Light Warlpiri, such that when the velar allomorph was applied to consonant-final stems, it would take the form -ing (as described in Section 4.3.1).

In the 2010 data of the children’s speech, only the velar-final form of the ergative case marker, -ng, occurs. When attached to consonant-final words derived from English, it takes the form -ing. The trend suggested in the 2005 data has become an entrenched pattern in the 2010 data – in Light Warlpiri the ergative case marker has two allomorphs, -ng and -ing. A statistical analysis is not necessary here because there is no question about the forms appearing in the 2010 data.
6.1.4 Ergative allomorphy in children’s Warlpiri texts

In the children’s Warlpiri texts at both time points, all seven forms of the ergative case marker appear in the Warlpiri texts, although the lateral forms (-rlu/-rli) appear on only 9% of overt A arguments in 2010. Velar forms occur on words of any length, that is, the stem length conditioning of forms has been relaxed. Table 6 shows the ergative case forms in both languages at the two time periods.

<table>
<thead>
<tr>
<th>Table 6: Ergative allomorphs in each language, 2005 and 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Warlpiri</strong></td>
</tr>
<tr>
<td>2005</td>
</tr>
<tr>
<td>2010</td>
</tr>
</tbody>
</table>

To summarise the results of ergative marking, in Light Warlpiri the degree of optionality of marking has decreased – the ergative marker occurs more often on A arguments in 2010 than in 2005, and more often when word order is VA than in 2005. The number of allomorphs has reduced – there are now only two allomorphs of the ergative marker in Light Warlpiri, -ng and -ing. In contrast, in Warlpiri there has been no change in the degree of optionality of ergative marking, and seven allomorphs of the ergative marker occur, but the conditioning factor of stem length has been relaxed.

6.2 Dative case allomorphy in Light Warlpiri and Warlpiri

The relevant questions here are whether there has been a change in the number of dative allomorphs since 2005, and whether a distinction in use is maintained between Warlpiri and Light Warlpiri. To re-cap, dative marking on nominals in Light Warlpiri can take a Warlpiri form -ku/-ki/-k, and/or a form derived from English, for/fo/bo. Table 7 gives the numbers of each type of dative in Light Warlpiri. As mentioned above, the type of form does not correlate with dative function or verb semantics.

<table>
<thead>
<tr>
<th>Table 7: Number of prepositional and suffix forms of dative case in Light Warlpiri, 2005 and 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dative case form</strong></td>
</tr>
<tr>
<td>Preposition</td>
</tr>
<tr>
<td>Suffix</td>
</tr>
</tbody>
</table>
A quantitative analysis of the number of allomorphs of the Warlpiri dative case marker in both languages was undertaken. The dependent variable was a case form with or without a vowel, and the independent variables were language (Warlpiri or Light Warlpiri) and the time of data collection (2005 or 2010). Speaker and story were random effects. There were 201 tokens, from 30 speakers; the raw numbers are given in Table 8.

<table>
<thead>
<tr>
<th>Light Warlpiri</th>
<th>Warlpiri</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>2010</td>
</tr>
<tr>
<td>With vowel</td>
<td>14</td>
</tr>
<tr>
<td>Without vowel</td>
<td>23</td>
</tr>
<tr>
<td>Total no. tokens</td>
<td>37</td>
</tr>
</tbody>
</table>

The analysis (in Appendix 5) finds that case forms with a vowel (-ku/-ki) are used more often in Warlpiri texts than in Light Warlpiri texts (p < 0.001), and that fewer vowel forms appear in each language in 2010 than in 2005 (p < 0.001). In the Light Warlpiri data a case form with an epenthetic vowel before the case marker, -ik, occurs, the dative corollary of the ergative -ing form (discussed in Section 6.3). There are only five occurrences of this form, only in Light Warlpiri, and in the analysis it is coded as a no-vowel form, to distinguish it from the –ku/-ki forms. It happens that most of the tokens of the no-vowel form are attached to stems with a final back vowel, so there was little opportunity for -ik forms to occur. Only Warlpiri-derived dative case suffixes occur in the Warlpiri texts.

In sum, there is a clear quantitative difference in the use of dative case allomorphy between languages, yet in both languages there is an increase in the no-vowel allomorphs in 2010.

7 Discussion and conclusion

The analyses conducted here allow close monitoring of the children's production of ergative and dative morphology in Light Warlpiri and Warlpiri over a five-year period. More change has taken place in Light Warlpiri than in Warlpiri. The employment of ergative marking in Light Warlpiri has increased, and the change is not in the direction of English typology but in the direction of Warlpiri. This interpretation is quite plausible as there is evidence of other contact languages becoming more like the sources with which they are still in contact, in some areas of grammar. In Zamboangueño, a variety of Mindanao Chabacano spoken in the Philippines, several morphological changes have had “the effect of making it more similar to many of the languages which have influenced it,
many of which have undergone the same recent changes” (Grant, 2009: 236). Similarly, Sri Lanka Malay, a mixed language combining Malay, Tamil and Sinhala, spoken in Sri Lanka, has acquired a finiteness contrast from continued contact with Tamil (Slomanson, 2009).

The rate of ergative marking in Light Warlpiri has increased since 2005 to be about the same as that in Warlpiri, up from 51% to 79% in 2010 (compare 83% in Warlpiri in 2010). In addition, the correlation of ergative case-marking occurring on a postverbal A argument is tighter in 2010, up from 63% to 96% in 2010. The number of ergative case allomorphs in Light Warlpiri has now reduced from many forms to two forms, -ng and -ing, conditioned by whether the final sound of the stem is a vowel or a consonant. Thus a trend observed in 2005 (O’Shannessy, To appear) had become entrenched by 2010. Neither of these forms occurs in classic Warlpiri, but do in contemporary Warlpiri. Each of these changes involves an increase in morphosyntactic regularity, yet surprisingly, the regularisation is in the direction of more instances of marking, not fewer. This is in contrast to changes that have taken place in the ergative system in the neighbouring mixed language, Gurindji Kriol (Meakins, 2015). While the degree of optionality of ergative marking in Light Warlpiri has become more similar to that in Warlpiri, the number of allomorphs differs. The quantitative difference in occurrences of ergative marking between the two languages found earlier (O’Shannessy, 2008, 2009) no longer applies, but there is a clear difference in allomorphy. The allomorphic reduction in Light Warlpiri means that the conditions that apply to ergative case-marking in Warlpiri – word length and vowel harmony – do not apply in Light Warlpiri. For both ergative and dative marking in Light Warlpiri there is an allomorph that attaches to vowel-final stems, and an alternate form for consonant-final stems. This kind of alternation is somewhat similar to the allomorphic alternation seen in Areyonga Teenage Pitjantjatjara (Langlois, 2004: 56–9), Young People’s Dyirbal (Schmidt, 1985: 383) and Gurindji Kriol (Meakins, 2011b: 23–4). A question arises here with regard to the function of ergative marking in Light Warlpiri, since a prior analysis found that it heightened the agentivity of the A argument referent, especially when the agent was in contrastive focus (Meakins & O’Shannessy, 2010). Now that the case marker is being applied more often in the 2010 data, the function has probably altered, but beyond the correlation with its occurrence on verb final A arguments, that is not analysed in this paper.

Dative case forms with a vowel (-ku/-ki) are used more often in Warlpiri texts than in Light Warlpiri texts as in the earlier data (O’Shannessy, To appear), but overall fewer allomorphs with a final vowel appear in each language in 2010. The English-derived dative prepositions, fo/bo, only occur in Light Warlpiri texts. In Light Warlpiri a dative form derived from Warlpiri or English is equally likely to occur, and this ratio has not changed since 2005. In other words allo-
morphic reduction is taking place in Warlpiri-derived suffixes, but a difference between languages is maintained. Dative case-marker allomorphy has a similar pattern to that of ergative case-marking, but the changes are less advanced. Although the focus of this chapter is on nominal morphology, it is interesting to note that several of the children employ the dative in the auxiliary in Warlpiri (there is no place for dative case in the Light Warlpiri auxiliary).

To conclude, this chapter has traced the production of ergative and dative morphology in children's contemporary Warlpiri and Light Warlpiri in one community over time. Two trends appear. In the first, the occurrence of ergative marking has increased in Light Warlpiri, across all age groups, such that it now parallels that in contemporary Warlpiri. Interestingly, the regularisation is in the direction of Warlpiri typology, probably due to the speakers' multilingualism, specifically, contact with Warlpiri. I believe this is the first evidence of an increase in ergative marking in the life of a language. But in Light Warlpiri there has been allomorphic reduction, and entrenchment of incipient patterns seen earlier (O'Shannessy, To appear), making the Light Warlpiri forms clearly different from those in Warlpiri. In Light Warlpiri, the Warlpiri conditioning factors of word length and vowel harmony no longer apply. Second, dative case allomorphy patterns somewhat like the that of the ergative in that Light Warlpiri allomorphy is reduced while contemporary Warlpiri allomorphy is not. Again earlier trends have become entrenched. In both of these cases a surface difference between the two languages is increasing. Increased use of ergative marking in Light Warlpiri has made the languages more similar in terms of optionality, yet in terms of surface forms the two languages show increasing difference.

Acknowledgements

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Abbreviations

ABL ablative
ALL allative
ANAPH anaphoric
ASSOC associative
CAUSE causative
COM comitative case
COMP complementiser
CONJ conjunction
DAT dative
DET determiner
DIM diminutive
DIS discourse marker
DL dual
EPEN epenthesis
ERG ergative case
FUT future
IMP imperative
IMPF imperfective
LOC locative
NFUT nonfuture
NMLZ nominalizer
NPST nonpast
O object
PL plural
PROG progressive
PRES present
PST past
REL relativiser
S subject
SG singular
TOP topic
TR transitive
1 first person
2 second person
3 third person
– morpheme break
= clitic break
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Appendices

Appendix 1

Figure 2: The Monster Story
Appendix 2

glmer analysis of ergative case marking in Light Warlpiri texts, 2005 and 2010, AV and VA word orders; data in Table 3

dat.glmerlw = glmer(erg ~ time + worder + (1|speaker) + (1|story),
family = binomial, data= dat)

summary(dat.glmerlw)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

Family: binomial (logit)

Formula: erg ~ time + worder + (1 | speaker) + (1 | story)

Data: dat

AIC BIC logLik deviance df.resid
   497.4 517.8  -243.7   487.4    439

Scaled residuals:
   Min     1Q   Median     3Q    Max
-3.4088 -0.7685  0.4752  0.5731  1.5134

Random effects:
  Groups    Name   Variance Std.Dev.
           speaker (Intercept) 0.2627  0.5125
           story (Intercept)   0.0000  0.0000

Number of obs: 438, groups: speaker, 41; story, 3

Fixed effects:
                   Estimate Std. Error z value Pr(>|z|)
(Intercept)       -6.148e+02  2.299e+00  -267.44 < 2e-16 ***
time               3.064e-01  1.146e-03   267.31 < 2e-16 ***
worderVA          1.188e+00  2.957e-01    4.02  5.86e-05 ***

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:
     (Intr)    time
time -0.998
worderVA -0.030  0.006
Appendix 3

Table 9: Transitive verbs appearing in the Light Warlpiri texts in 2005 and 2010

<table>
<thead>
<tr>
<th>LW gloss</th>
<th>LW gloss</th>
<th>LW gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>bait-im</td>
<td>bite</td>
<td>blok-im*</td>
</tr>
<tr>
<td>bast-im</td>
<td>bust</td>
<td>brouk-im</td>
</tr>
<tr>
<td>do-im</td>
<td>do</td>
<td>draib-im</td>
</tr>
<tr>
<td>faind-im</td>
<td>find</td>
<td>fiks-im</td>
</tr>
<tr>
<td>hab-im</td>
<td>have</td>
<td>help-im</td>
</tr>
<tr>
<td>jeinj-im*</td>
<td>change</td>
<td>jeis-im</td>
</tr>
<tr>
<td>kam-at-im</td>
<td>bring out</td>
<td>kat-im</td>
</tr>
<tr>
<td>lik-im</td>
<td>lick</td>
<td>lift-im</td>
</tr>
<tr>
<td>look-im</td>
<td>look</td>
<td>melk-im</td>
</tr>
<tr>
<td>old-im</td>
<td>hold</td>
<td>pantirn-im</td>
</tr>
<tr>
<td>shut-im</td>
<td>throw</td>
<td>pud-im</td>
</tr>
<tr>
<td>straik-im</td>
<td>strike</td>
<td>spark-im</td>
</tr>
<tr>
<td>tow-im</td>
<td>tow</td>
<td>teik-im</td>
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<tr>
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</tbody>
</table>

* denotes a verb in the 2005 texts but not the 2010 texts. All verbs in the 2010 texts also occurred in 2005.

Appendix 4

glmer analysis of number of ergative case marker tokens in children’s Warlpiri texts, 2005 and 2010, AV and VA word orders; data in Table 5

dat.glmerwrlp = glmer(erg ~ worder + (1|speaker) + (1|story), family = binomial, data = dat)

summary(dat.glmerwrlp)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

Family: binomial (logit)

Formula: erg ~ worder + (1 | speaker) + (1 | story)

Data: dat

AIC  BIC  logLik  deviance  df.resid
265.5 280.2  −128.8 257.5     289

Scaled residuals:

Min  1Q  Median  3Q  Max
−3.1784 0.1775 0.3178 0.4407 1.3169
Random effects:
Groups Name Variance Std.Dev.
speaker (Intercept) 1.51024 1.2289
story (Intercept) 0.07691 0.2773
Number of obs: 293, groups: speaker, 26; story, 3

Fixed effects:

| Estimate | Std. Error | z value | Pr(>|z|) |
|----------|------------|---------|----------|
| (Intercept) | 1.3887 | 0.3655 | 3.799 | 0.000145 *** |
| worderVA | 1.4210 | 0.5659 | 2.511 | 0.012045 * |

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Appendix 5

glmer analysis of dative case allomorphs, in Light Warlpiri vs Warlpiri, 2005 vs 2010

dat.glmer = glmer(casevowela ~ language + data_time + (1|story) + (1|speaker),
family = binomial, data = dat)

summary(dat.glmer)

Generalized linear mixed model fit by maximum likelihood (Laplace Approximation) ['glmerMod']

Family: binomial (logit)

Formula: casevowela ~ language + data_time + (1 | story)

Data: dat

AIC BIC logLik deviance df.resid
218.2 231.4 −105.1 210.2 197

Scaled residuals:

Min 1Q Median 3Q Max
−2.1680 −0.4933 −0.3599 0.7425 2.6525

Random effects:

Groups Name Variance Std.Dev.
story (Intercept) 0.1294 0.3597

Number of obs: 201, groups: story, 3
Fixed effects:

|                  | Estimate | Std. Error | z value | Pr(>|z|) |
|------------------|----------|------------|---------|----------|
| (Intercept)      | 164.86433| 30.62935   | 5.383   | 7.34e-08 *** |
| languageWrlp     | 2.54644  | 0.36596    | 6.958   | 3.45e-12 *** |
| data_time        | -0.08292 | 0.01525    | -5.437  | 5.42e-08 *** |

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Correlation of Fixed Effects:

<table>
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<th>(Intr)</th>
<th>lnnuWr</th>
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</thead>
<tbody>
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<td></td>
</tr>
<tr>
<td>data_time</td>
<td>-1.000</td>
<td>0.013</td>
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